



Original communication

Socioeconomic, demographic study on substance abuse among students of professional college in a southern town, Berhampur of Odisha state (India)



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ABSTRACT

Currently there is an increasing trend of substance abuse in developing countries like India. This study attempted to identify the different predisposing factors, associated psycho-social and medical problems, prevalence and types of substance abuse in students. The study covered a cross-section of 720 students with an overall male to female ratio of 4.1:1. The majority of the sufferers were from middle socioeconomic class, aged between 15 and 19 years. Common substances of abuse were chewable tobacco and cannabis. The risk of abuse was more in hostellers hailing from broken families (62.5%). Friends had the highest influence (59%). Most of them (49.4%) tried multiple times to give up, but peer pressure (53%) compelled them to restart. In 60.8% cases the parents were completely unaware about this behavior. The commonly associated problems were psychological (34.3%) and medical (29.5%).

Our study at the end points out major risk factors and their remedial measures to curb substance abuse.

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1. Introduction

Drug or substance abuse takes place by self-medication in a manner and amount beyond the approved medical and social patterns in a culture at a given time.¹ Psychoactive substances, more commonly known as psychoactive drugs when taken, have the ability to change an individual's consciousness, mood or even thinking process.² Such abuse is prevalent and shows an increasing trend in developing countries like India which has a great impact on social, economic, cultural and health status of individual and community. Substance abuse, especially amongst the youth has been a matter of concern throughout the world. Due to rapid

industrialization, urbanization and changes in lifestyle, many struggles for survival and are forced to use various substances.

Literature on the global burden of disease (GBD) shows that tobacco and alcohol are major causes of mortality and disability in developed countries. The impact of tobacco is expected to increase in other parts of the world.³ Among the ten leading risk factors in terms of avoidable burden, tobacco stands fourth and alcohol fifth for the year 2000 and both remain high on the list in the estimates for 2010 and 2020.⁴

In recent years the consumption of both legal and illegal substances has increased throughout the world. The situation is alarming in view of the fact that the age of initiation of substance use is decreasing.⁵ Adolescence is the critical period when the first initiation of substance abuse is observed. Among the youth, students are more involved due to increased academic pressure, peer group influence, an increase in popularity and easy accessibility to substances like alcohol, tobacco etc..⁶

Tobacco consumption is a major cause of death accounting for thirteen thousand deaths per day all over the world. Larger

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number of children in the age group of 13–15 years are currently using or have tried tobacco. Nearly 25% began use before the age of 10 years. India has one of the highest youth smoking rates in the world.⁷ In the third world a new smoke ring is being forged which is even stronger than the one in the west. It is made up of same political and economic links – employment, revenue, trade, advertising and promotion but it is stronger because the governments of many developing countries are even more dependent on tobacco.⁸

Human has used psychoactive substances from time immemorial. Most common substances abused are tobacco, alcohol and other hard drugs. Smoking has not always been socially acceptable for men and it has been even less so for women. In 1606 two university degrees were issued by Cambridge University, which prohibited any student or other member of university from drinking excessively or using tobacco. During the First World War, sending cigarettes to soldier was deemed patriotic, which effectively put an end to the anti-smoking movement.⁹ The present day world “Hard Drug” problems derive its origin in the middle of the 18th century from cultivation of opium in India. During that time it was exported to china by the East India Company. The practice of non-medicinal use of opium and cannabis had been going on in India for several centuries.¹⁰ The advent of machine manufacturing cigarettes in the late 19th century was a major factor in cigarettes becoming the dominant form of tobacco in the early 20th century.¹¹

Commonly abused substances are depressant substance like alcohol, barbiturate, hypnotics, opiates, stimulants like cocaine, hallucinogenic drugs like LSD, mescaline, others like nicotine, cannabis, volatile inhalants like anesthetic gases, glues, paint thinners and miscellaneous intoxicants like Java, betel nuts and phenylclidine. Tobacco is abused in two forms. 1) Smoking tobacco like cigarettes, beedi, cigars, pipe smoking, reverse smoking and 2) Smokeless forms like snuff (nass), khaini, pan masala, mishri, tobacco pastes (gudhaku) especially in India.

Multiple drug abusers are otherwise known as poly drug abusers. It usually occurs in young city dwellers involved in drug abuse. There is an association between drug abuse and psychotic illness. This problem is on the increase and is the source of various types of morbidities like violence, AIDS and medical and psychotic co-morbidity. More than 5500 billion cigarettes are manufactured and there are 1.2 billion smokers in the world. This number is expected to increase to 2 billion by 2030.^{21,22} The per capita consumption of cigarettes in Asia and the Far East is higher than in other parts of the world.

The technical persons or the students of professional institutions, who are the torchbearers for the future generation, are not away from such hazardous behavior. The reasons of practice by such responsible group need to be explored. A number of studies on this had been carried out in different parts of Globe^{24–34} including India^{7,13–23} but so far very few studies on this had been undertaken in this locality.

Therefore considering its magnitude the present study was taken up with objectives to assess the socioeconomic and demographic characteristics, to find out the prevalence and type of substance abuse, to identify the different predisposing factors and to specify the different psychological, social and medical problems among substance abusers.

2. Materials and methods

This was a cross-sectional study, carried out over a period of 2 years from 2009 to 2011, in Berhampur, Odisha (India) which is not only a major trade center, but also an educational hub with students mostly of adolescent age group come here to study.

2.1. Sampling

This pilot study was carried out on the selected subjects having prevalence of substance abuse 36% in both sexes. The sample size was calculated statistically based on $n = 4pq/L^2$ (n = sample size, p = positive character (in %), q = not having a positive character (in %), L = allowable error. At 10% allowable error, $n = 712$). The minimum sample size thus determined was 712. Hence 720 students were included in the present study from 5 different professional colleges situated within or adjacent to the township.

2.2. Data collection

Collection of data was accomplished in a friendly manner with due regard to the confidentiality of the identity and responses. Before recording the responses in the prepared questionnaire, doubts with respect to queries were clearly explained and clarified. After the questionnaire was answered, students were examined for general health, height, weight, BMI, oral health examination and findings were recorded in their respective response forms.

It was reasonably assumed that substance abusers are those who have used any of the substance for more than once during last one month prior to the day of study. The students were thus categorized into 3 groups such as the early (10–14 years), middle (15–19 years) and late (>20 years). Socioeconomic status determination was done following Prasad's classification (base year 1961) taking into consideration the per capita family income updated by All India Consumer Price Index (AICPI). Body Mass Index of the individuals was calculated by measuring the weight (kg) divided by the square of height in meters.

2.3. Statistical analysis

The data so collected were analyzed by using the SPSS software package, version 10.0. The data collected was analyzed using the chi square test. The p -value ($p \leq 0.05$) was considered as statistically significant.

3. Results

Among the 720 students studied 477 (66.3%) were males and rest 243 (33.7%) were females. The overall prevalence of substance abusers was found to be 23.1% and the rest (76.9%) were healthy with a male to female ratio of 14.11:1 (male = 93.4% and female = 6.6%). The majority of the subjects were from upper class (76.9%), out of which 22.7% were substance abusers ($p > 0.05$) (Fig. 1). The nuclear family comprised of 79.4% of study subjects out of which 21.3% were abusers in comparison to joint family which constitute 13%, the abusers were 31.2% (Table 1). Most of the abuser (62.5%) was hailing from broken families ($p < 0.001$) (Table 2). Chewing tobacco alone (21.1%) represents the highest pattern of substance abuse, cannabis and other substance (18.7%) and the least a combination of smoking, alcohol and chewing tobacco (17.5%) (Fig. 2). Fifty one percent start abuse at an age of 15–19 years followed by 31.2% after 20 years (Table 3). The risk of substance abuse was more (26.7%) for host elites than staying alone (25%) ($p < 0.001$). More than half of abusers (50.6%) were using it for 1–5 years followed by 31.9% for less than 1 year. Abuse of substance by other family members and parents affected the abusive tendency in 31.6% and 30.2% of cases respectively ($p < 0.01$). Friends influenced the abusive tendency more in abusers (59%). Almost thirty-seven percent of abusers spend \$7.39–14.79 monthly for said purpose followed by 33.1% spending \$ 1.48–7.39. As high as 49.4% cases had tried 2–4 times to give up substance abuse but peer pressure (53%) was the main reason for restarting.

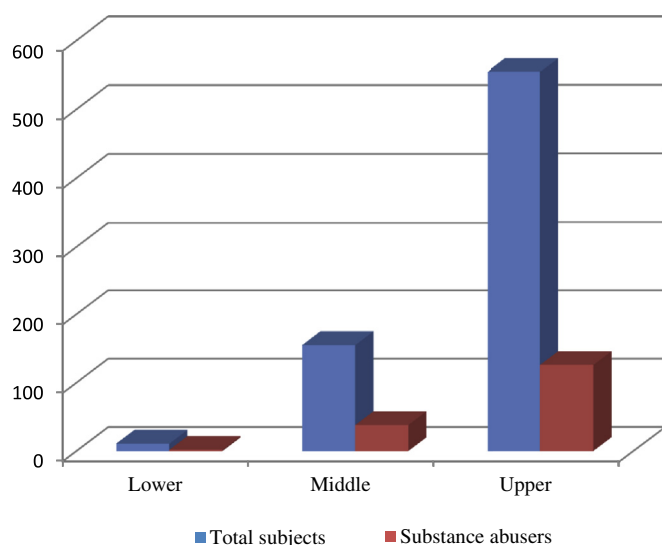


Fig. 1. Substance abusers among different social class.

Most of the parents were unaware about their wards behavior (60.8%). Eighty-nine percent of non-abusers had knowledge of substance abuse. Most of the abusers (81.3%) continued their addiction even after knowing it ($p < 0.01$). Electronic media were the main source of information regarding harmful effects followed by friends and relatives (64.2%). Presence of attributes like type of family, parent's abuse, friend's abuse, staying pattern and parental relationship increase the risk of substance abuse by 1.56, 1.78, 2.69, 2.54 and 2.84 times respectively which is more than that of its absence as statistically calculated by Odds Ratio (Table 4). Among substance abusers 53% presented with normal BMI, while 30.9% presented with features of overweight ($p > 0.05$). Medical problems like mouth ulcer/fibrosis (13.6%) and gastritis (8.4%) detected in 57.6% of the abusers. Anxiety (10.8%) was the commonest psychological problem in abusers followed by depression 9% ($p < 0.001$) (Table 5).

4. Discussion

Various studies on substance abuse have been undertaken worldwide, but results on its prevalence vary widely. In the present study overall prevalence of substance abuse in this locality was 23.1%. Almost similar findings reported from northern India⁷ (24.2%) while contradictory views reported from studies elsewhere in India.^{15–17}

The study sample includes 477 (66.3%) males and 243 (33.7%) females with a male to female ratio 2:1. The prevalence among abusers with a male to female ratio of 14.15:1 (male = 93.4% and female = 6.6%). A study in USA²⁴ revealed prevalence of 92% of males and 73% of females but studies in India⁷ suggests a very low prevalence in females similar to our study. This gross sexual difference of substance abuse seems primarily due to social unacceptability for females and easy accessibility of means for males.

Table 1
Substance abuse in relation to type of family.

Type of family	Total subjects	%	Substance abusers	%
Nuclear	572	79.4	122 (73.5%)	21.3
Extended	55	7.6	15 (9%)	27.3
Joint	93	13.0	29 (17.5%)	31.2
Total	720	100	166	23.1

$\chi^2 = 4.68$ d.f. = 1 $p < 0.05$.

Table 2
Substance abuse and parental relationships.

Parental relationship	Total subjects	%	Substance abusers	%
Normal	645	89.6	134 (80.7%)	20.8
Problem family	67	9.3	27 (16.3%)	40.3
Broken family	8	1.1	5 (3%)	62.5
Total	720	100	166	23.1

$\chi^2 = 18.15$ d.f. = 1 $p < 0.001$.

The majority of students were Hindu by religion (93.7%) out of which only 17.4% were substance abusers. Christians though comprised less (3.6%) but reported highest abuse (73%). Although the majority of the studied subjects belonged to the upper class (76.9%), followed by middle (21.6%) and lower (18.2%) (Fig. 1), in contrast most of the substance abusers were hailing from middle class (24.5%), followed by upper class (22.7%) and the lower class (18.2%). Our findings on socioeconomic strata appears quite similar to the findings of other researchers.¹² A Hindu middle class predominance in substance abuse can be explained by the fact that the majority of the population in this locality are Hindus have an average family income.

The nuclear family comprised 79.4% of the student population out of which 21.3% were abusers. Although the extended and joint family comprised of 7.6% and 13% respectively the abusers appears to be more with 27.3% and 31.2% respectively (Table 1). The reasons for more use of substances of the members of joint family could be due to influence from other family members. On further analysis of family it is observed that most of the abusers (62.5%) hailed from a broken family and lost from normal family (Table 2), finding appears similar with studies elsewhere in India.¹³ The reasons of more abuse reported from broken family could due to stress and strain of life and financial hardship.

In our study the common pattern of substance abuse was chewing tobacco alone (21.1%), cannabis and other substance (18.7%) and smoking, alcohol, chewing tobacco in combination (17.5%) (Fig. 2). By further categorical analysis of substances revealed, majority chews tobacco (64.5%), 57.8% smoke, 53.6% take alcohol, 18.7% take cannabis and 8.4% abuse medicines. Our findings vary considerably from the findings observed elsewhere in India⁷ (18.3% smoke cigarettes, 16.6% smoke beedi and 24.2% take smokeless tobacco). This can be explained due to easy availability of means even from unlicensed shops coupled with increased stress and strains of life due to various reasons.

Fifty one percent start abuse in between 15 and 19 years followed by 31.2% after 20 years (Table 3). In this locality Substance abuse at 10 years was found to be 17.8% which appears quite low in comparison to a similar study conducted elsewhere in India.¹⁶ In another study¹⁹ the age of initiation of smoking was found between 15 and 19 years (84%) followed by 10–14 years (9.8%) which almost

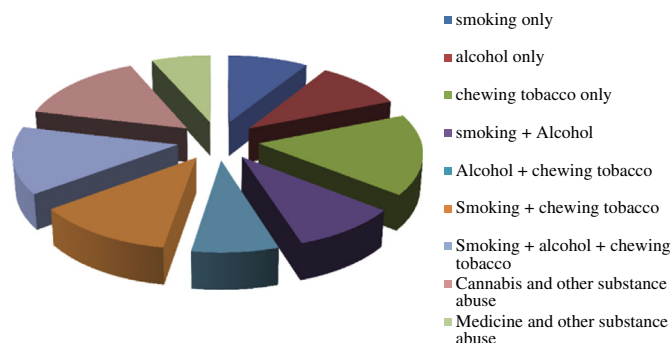


Fig. 2. Pattern of substance abuse.

Table 3
Age of initiation for different substances of abuse.

Type of substance	Age of initiation						Total	
	Early	%	Middle	%	Late	%	no	%
Smoking cigarette	12 (20%)	12.5	46 (26.7%)	47.9	38 (36.2%)	39.6	96	57.8
Alcohol	16 (26.7%)	18.0	49 (28.5%)	55.1	24 (22.9%)	26.9	89	53.6
Chewing tobacco	29 (48.3%)	27.1	50 (29.1%)	46.7	28 (26.7%)	26.2	107	64.5
Cannabis	3 (5%)	9.7	15 (8.7%)	48.4	13 (12.4%)	1.9	31	18.7
Medicines	—	—	12 (7%)	85.7	2 (1.9%)	14.3	14	8.4
Total	60	17.8%	172	51	105	31.2	337	

tallies with our finding of the highest prevalence in 15–19 years. According to WHO²⁷ most of the experimentation and initiation of dependence producing drugs take place during adolescence. On this issue a study undertaken by some Indian researchers²⁸ reported use of alcohol for the first time between 15 and 24 years (41.9%), almost twice to our proportional finding in 21.5%. The cause for initiation and maintenance of substance abuse at this age could be an adverse effect of advertisement, easy accessibility of money aided with aristocratic cultural influence.

The risk of substance abuse was more (26.7%) in host elites than non-host elites. A majority of abusers (50.6%) was using it for 1–5 years followed by 31.9% for less than 1 year. The abusive habit of other family members and parents affected the abusive tendency of subjects in 31.6% and 30.2% respectively. Studies in other parts of India⁷ revealed that 51.7% school students who abused substances had a smoker parent. It seems parents and relative's abusive pattern directly or indirectly has an impact on their children's initiation and maintenance of substance abuse. Leaving the wards in hostels also powers them freedom to imbibe the bad quality easily.

In our study we observed, friends influenced the most for substance abuse (59%), which appears almost similar with findings of other researchers.^{7,19} Studies¹⁴ especially on child laborers on influence also depicted similar view (57.3%), which appears quite alarming. The reasons for this could be due to increased association with friends of low morale, emotional duress and careless parents.

As regards expenditure is concerned, 36.8% of abusers spend \$7.39–14.79 a month followed by 33.1% spending \$ 1.48–7.39. Views vary on this. Some say³⁵ current tobacco abuse was associated significantly with the amount of pocket money received while others say²⁶ street children were spending over \$ 0.9 a day on gutkha. The reason for heavy expenditure on abuse could be due to easy availability of money and accountability. Parental carelessness cannot be ignored too.

Table 4
Associations between risk factors and substance abuse.

Serial no.	Risk variables	Substance abuse				Odds ratio
		With	%	Without	%	
1.	Type of family					
	Joint family	44	29.7	104	70.3	1.56
	Nuclear family	122	21.1	450	78.9	
2.	Parents substance use					
	Present	58	30.2	134	69.8	1.78
	Absent	96	19.6	394	80.4	
3.	Friends abuse status					
	Users	102	33.1	206	66.9	2.69
	Nonusers	64	15.5	348	84.5	
4.	Staying pattern					
	Away	145	26.4	405	73.6	2.54
	With parents	21	12.4	149	87.6	
5.	Parental relationship					
	Broken/problem	32	42.7	43	57.3	2.84
	Normal	134	20.8	511	79.2	

On further analysis of data we observed that all the substance abusers had tried at least once to give up the abuse. Most of them (49.4%) even had tried 2–4 times to give up. A study in India¹⁹ reported 41% of male college students had tried to quit smoking during their smoking carrier. Peer pressure (53%) was the main reason for restarting substance abuse followed by family custom/problem (19.3%) and pleasure (17.5%). Other studies¹⁹ on this, points out the reasons for restarting as fun (65.2%), stress (28.2%) and peer pressure (6.5%). Substance dependence refers to a cluster of cognitive, behavioral and psychological symptoms indicating that a person continues the use of substance despite significant substance related problems.²⁴ In India commonest purpose of substance abuse was reported to be curiosity or experimentation among child laborers.¹⁴ Another study among students in India reported that many of the boys and girls feel smoking makes them look more attractive.⁷ These varied reasons reflects the difficulties in giving up the habit of substance abuse.

The parental attitudes for their wards on substance abuse vary considerably. Most of them (60.8%) were ignorant about their behavior. In 15.7% of cases parents dissuade them amicably to give up substance abuse whereas in 18.1% of cases, the parents were not bothered. Parents were punitive only in 5.4% of cases. The reasons for this type of parental attitude could be due to working patterns and disinterest/not watchful for the activities of their own children.

Among the studied population, 87.2% of students especially the non-abusers (89%) had some knowledge regarding the outcome of substance abuse. On further analysis it is observed that 81.3% of abusers continued their addiction even after knowing it. Our findings are almost similar to the findings observed,⁷ that non-abusers were more aware of the substances

Table 5
various problems of substance abusers compared to nonusers.

Problems		Substance abuse				Total	
		With	%	Without	%	no	%
Medical	Reeling head	8	4.8	6	1.1	14	1.9
	Gastritis	14	8.4	18	3.2	32	4.4
	Mouth problem	23	13.6	12	2.2	35	4.9
	Palpitation	4	2.4	—	—	4	0.6
	Tremor	—	—	—	—	—	—
	Total	49 (57.6%)	29.5	36 (42.4%)	6.5	85	11.8
Psychological	Anxiety	18	10.8	14	2.5	32	4.4
	Depression	15	9	7	1.2	22	3.1
	Insomnia	11	6.6	4	0.7	15	2.1
	Discomfort	13	7.8	16	2.9	29	4.0
	Total	57 (58.2%)	34.3	41 (41.8%)	7.4	98	13.6
	Hatred	2	1.2	—	—	2	0.3
Social	Family problem	8	4.8	21	3.8	29	4.0
	Social isolation	—	—	—	—	—	—
	Total	10 (32.3%)	6	21 (66.7%)	3.8	31	4.3
Financial	Debt	42	25.3	28	5.1	70	9.7
	No impact	124	74.7	526	94.9	650	90.3
	Total	166	23.1	554	76.9	720	

and their effects. It seems lack of awareness and counseling are the two major reasons for continuance of substance abuse by the students in this area.

As regards the harmful effects of substance abuse is concerned it was observed in our study that the electronic media provided the highest source of information followed by friends/relatives and books. Another study⁷ reported most of the students had seen the advertisement of smoking sometimes but gutkha many times confirming our view of electronic media being the highest source of information. Media play a major role in education, but imbibing bad qualities and gesture often becomes destructive for the groomers as learnt from the abusers.

Among substance abusers, 53% had normal BMI (Body Mass Index), 30.9% overweight and 12.1% underweight. Our findings did not reveal any significant difference of BMI of substance abusers and nonusers, but in contrast another on this study²⁰ predicted association between tobacco use, either smoked or smokeless and thinness.

The principal problems encountered mostly from substance abusers were medical, psychological and financial. In medical problems, 13.6% had mouth ulcer/fibrosis and 8.4% gastritis. Anxiety (10.8%) followed by depression (9%) were the two common psychological problems encountered from the abusers (Table 5). Similar to our study a report²¹ suggested an increase in incidence of oral cancers among abusers. Researchers vary on medical problems. Besides the stated common problems many researchers pointed out many uncommon medical problems also. Some say the relative risk of death caused by tuberculosis was 2.1 for current smokers and of 2.6 especially for beedi smokers both compared to non-smokers. Fifty-five percent of men with the specified cause of medical death had ever smoked, with 43% of these deaths were due to excess mortality among smokers from respiratory, vascular and neoplastic disease,²² while others say²³ that the absence of betel leaves in pan masala and the proportionately higher dry weight of Areca nuts may be partly responsible for the early development of oral sub-mucosal fibrosis in pan masala/gutkhachewers. Considering all the views we feel a strong association of substance abuse with many problems especially the medical one. The major causes which can be attributed to this are easy availability of means, lack of awareness of the ill effects aided with long term use.

5. Conclusion

Current consumption of both legal and illegal substances has increased throughout the world including many Asian countries like India. It is not only limited to mood-altering or psychoactive drugs, but also to use of many illicit drugs. Adolescence is the critical period where initiation and use of substances are often seen especially in students due to increased academic pressure, peer group influence, an increase in popularity and easy access to common substances like alcohol, and tobacco.

The present study was carried out among the students of professional colleges aged between 18 and 22 years. This age group is considered important not only being placed in the transition phase between adolescence and adulthood but also for career building and is likely to be affected from social changes and ill health practices like substance abuse.

We observed that most boys of the professional colleges aged between 15 and 19 years are involved in substance abuse involving one or more substances. Social environment like away from home and parents, strenuous family relations (broken and problem family) along with the overburden nature of the curriculum without relaxation are largely attributed towards such deleterious habits. The majority of the abusers admitted the fact

of inconveniences caused following purchasing of substances but were not aware of the invisible cost towards their health and other social problems which are likely to be caused following substance abuse. Psychological and medical problems were the major health concerns, appreciably ascertained from the abusers.

In view of its magnanimity, Government of India had set up establishments like NCDAP (National Centre for Drug Abuse Prevention) at New Delhi and many RRTC (Regional Resource and Training Centers) at different zones for its prevention. But in spite of all efforts by different agencies at various levels the rate of substance abuse is not declining, posing a serious threat to the mankind. To safeguard the society from the clutches of substance abuse we feel, at par with the changing trends researches like this should continue which can throw some light for the betterment of the youth of this country.

The following interventions suggested for prevention of substance abuse.

- > Awareness of harmful effects of smoking and other commonly used substances.
- > Psycho-social support, counseling and vigilance by the wardens, teachers and family members.
- > Strict ban on use of substances inside institutional premises as well as their availability nearby.
- > Enforcement of government policy on cost, purchase, availability and uses of psychoactive substances.

Ethical approval

Taken

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Conflict of interest

No conflict of interest.

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